

What is claimed is:

1. A device for protecting a driving motor in a vacuum cleaner, comprising:
a lower casing forming a lower portion of a main body of a vacuum cleaner;
5 an upper casing forming an upper portion of the main body of the vacuum cleaner;
a motor housing which is installed in the lower casing and which includes a driving motor therein, wherein an upper portion of the motor housing is opened upwardly;
a filtering device installed on the lower casing and configured to filter out
10 foreign materials from air introduced into the vacuum cleaner; and
a cover positioned between the upper casing and the filtering device and motor housing, the cover being integrally formed with a first cover portion positioned above an upper portion of the filtering device and a second cover portion configured to cover the upper portion of the motor housing; and
15 a pressure switch configured to sense pressure within the motor housing is directly installed on the second cover portion of the cover.
2. The device as claimed in claim 1, further comprising a damper configured to
introduce external air into the motor housing when the pressure within the motor housing is
20 lowered below a predetermined pressure value, wherein the damper is installed on the second cover portion of the cover.

3. A device for protecting a driving motor in a vacuum cleaner, comprising:
a lower casing configured to form a lower portion of a main body of the vacuum cleaner;
an upper casing configured to form an upper portion of the main body of the vacuum cleaner;
5 a motor housing installed in the lower casing and configured to receive therein a driving motor;
a filtering chamber installed on the lower casing; and
a cover positioned between the upper casing and the lower casing, the cover
10 having a first portion positioned above the filtering chamber and a second portion positioned above the motor housing.

4. The device as claimed in claim 3, wherein the filtering chamber comprises a filtering device.

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5. The device as claimed in claim 3, further comprising a pressure switch configured to sense pressure within the motor housing.

6. The device as claimed in claim 7, wherein the pressure switch is installed
20 on the second portion.

7. The device as claimed in claim 5, further comprising a damper configured to introduce external air into the motor housing when the pressure within the motor housing is lowered below a predetermined pressure value.

5 8. The device as claimed in claim 7, wherein the damper is installed on the second portion.

9. The device as claimed in claim 3, wherein an upper portion of the motor housing is opened upwardly and the second portion is installed over the opened upper
10 portion of the motor housing.

10. The device as claimed in claim 3, further comprising a duct configured to connect the filtering device to the motor housing, whereby air discharged from the filtering device is introduced into the motor housing to cool the driving motor disposed therein.

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11. The device as claimed in claim 3, further comprising an inlet configured to allow the introduction of air into the filtering device.

12. The device as claimed in claim 3, wherein the motor housing is provided in
20 a front portion of the main body of the vacuum cleaner and the filtering chamber is provided in a rear portion of the main body of the vacuum cleaner.

13. A vacuum cleaner comprising the device of claim 3.

14. A device for protecting a driving motor in a vacuum cleaner, comprising:

a lower casing forming a lower portion of a main body of a vacuum cleaner;

5 a motor housing installed in the lower casing and configured to receive
therein a driving motor;

a cover configured to cover and protect the motor housing; and

a damper provided in a surface of the cover above the motor housing.

10 15. The device as claimed in claim 14, further comprising an upper casing
forming an upper portion of the main body of the vacuum cleaner.

16. The device as claimed in claim 15, further comprising a filtering chamber
installed on the lower casing.

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17. The device as claimed in claim 16, wherein the filtering chamber comprises
a filtering device.

18. The device as claimed in claim 16, wherein the cover covers and protects
20 both the motor housing and the filtering chamber.

19. The device as claimed in claim 18, wherein the cover is positioned intermediate the upper casing and the motor housing and filtering chamber.

20. The device as claimed in claim 16, wherein the motor housing is provided
5 in a front portion of the main body of the vacuum cleaner and the filtering chamber is provided in a rear portion of the main body of the vacuum cleaner.

21. The device as claimed in claim 14, further comprising a pressure sensor positioned on the cover and configured to sense pressure within the motor housing.

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22. A vacuum cleaner comprising the device of claim 14.

23. A device for protecting a driving motor in a vacuum cleaner, comprising:
a lower casing configured to form a lower portion of a main body of a
15 vacuum cleaner;

an upper casing configured to form an upper portion of the main body of the vacuum cleaner;

a motor housing installed in the lower casing and configured to receive therein a driving motor;

20 an inlet for receiving therethrough suction air into the vacuum cleaner; and

a filtering device configured to create a swirl flow of suction air, wherein suction air is received into an upper portion of the filtering device and flows downward, the suction air being discharged out of the vacuum cleaner through an outlet.

5 24. The device as claimed in claim 23, wherein foreign materials contained in the suction air are filtered by the filtering device, a portion falling from the suction air due to gravity and another portion being removed from the suction air by a filter of the filtering device.

10 25. The device as claimed in claim 23, wherein filtered suction air is discharged through an outlet in an upper portion of the filtering device.

 26. The device as claimed in claim 23, wherein the motor housing is provided in a front portion of the main body of the vacuum cleaner and the filtering device is
15 provided in a rear portion of the main body of the vacuum cleaner.

 27. A vacuum cleaner comprising the device of claim 23.

 28. A device for protecting a driving motor in a vacuum cleaner, comprising:
20 a lower casing configured to form a lower portion of a main body of a vacuum cleaner;

an upper casing configured to form an upper portion of the main body of the vacuum cleaner;

a motor housing installed in the lower casing and configured to receive therein a vertically oriented driving motor; and

5 a cover configured to cover and protect the motor housing positioned intermediate the upper casing and the motor housing.

29. The device as claimed in claim 28, further comprising a filtering chamber installed on the lower casing.

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30. The device as claimed in claim 29, wherein the filtering chamber comprises a filtering device.

31. The device as claimed in claim 29, wherein the motor housing is provided in a front portion of the main body of the vacuum cleaner and the filtering chamber is provided in a rear portion of the main body of the vacuum cleaner.

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32. The device as claimed in claim 28, wherein the cover covers and protects both the motor housing and the filtering chamber.

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33. The device as claimed in claim 28, further comprising a pressure sensor positioned on the cover and configured to sense pressure within the motor housing.

34. The device as claimed in claim 28, further comprising a damper provided in a surface of the cover above the motor housing.

35. A vacuum cleaner comprising the device of claim 28.

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36. A device for protecting a driving motor in a vacuum cleaner, comprising:
a canister formed by a lower casing and an upper casing to form a chamber within the canister, a first portion of the chamber serving as a collection chamber and a second portion of the chamber serving as a motor housing; and

10 a motor located in the second portion within the motor housing, wherein the motor is oriented vertically with respect to the upper and lower casings.

37. The device as claimed in claim 36, further comprising an inlet formed at a front portion of the collection chamber.

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38. The device as claimed in claim 36, further comprising an inlet formed at a front portion of the canister.

39. The device as claimed in claim 36, wherein the first portion of the chamber
20 is a rear portion of the vacuum cleaner and the second portion of the chamber is a front portion of the vacuum cleaner.

40. The device as claimed in claim 36, further comprising a cover positioned intermediate the upper casing and the motor housing.

41. The device as claimed in claim 40, wherein the cover covers and protects
5 both the motor housing and the collection chamber.

42. The device as claimed in claim 40, further comprising a damper provided in a surface of the cover above the motor housing.

10 43. The device as claimed in claim 38, further comprising a pressure sensor positioned on the cover and configured to sense pressure within the motor housing.

44. A vacuum cleaner comprising the device of claim 36.

15 45. A device for protecting a driving motor in a vacuum cleaner, comprising:
a canister formed by a lower casing and an upper casing to form a chamber within the canister, a rear portion of the canister serving as a collection chamber and a front portion of the canister serving as a motor housing; and
a motor located in the front portion of the chamber within the motor
20 housing.

46. The device as claimed in claim 45, further comprising an inlet formed at the front portion of the canister.

47. The device as claimed in claim 45, further comprising a cover positioned
5 intermediate the upper casing and the motor housing.

48. The device as claimed in claim 47, wherein the cover covers and protects both the motor housing and the collection chamber.

10 49. The device as claimed in claim 47, further comprising a damper provided in a surface of the cover above the motor housing.

50. The device as claimed in claim 47, further comprising a pressure sensor positioned on the cover and configured to sense pressure within the motor housing.

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51. A vacuum cleaner comprising the device of claim 45.

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